

# PREDIABETES IN MICHIGAN

## FACT SHEET

### What is Prediabetes?<sup>1</sup>

Before people develop type 2 diabetes, their blood glucose levels become higher than normal, but not yet high enough to be diagnosed as diabetes. This condition is called "prediabetes." Persons with prediabetes are 5-15 times more likely to develop type-2 diabetes in the next 5 years than persons with normal levels of blood glucose. In addition, recent research has shown that some long-term damage to the body, including to the eyes and especially to the heart and circulatory system, may occur when a person has prediabetes.

The Fasting Plasma Glucose (FPG) test is the most commonly used test for prediabetes. This blood test is done the morning after a person fasts overnight (for 9 or more hours). Blood sugar levels between 100-125 mg/dL (normal levels are less than 100 mg/dL) indicate a positive test for prediabetes (Figure 1).

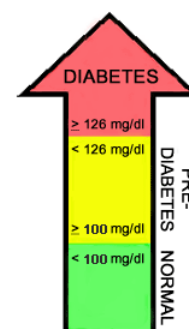


Figure 1. Diagnostic levels for Fasting Plasma Glucose.<sup>2</sup>

**The American Diabetes Association recommends people be tested for prediabetes if they are 45 years or older and are overweight or obese (with a body mass index  $\geq 25$ ).**

That means about **1,059,000** people should be screened for prediabetes in Michigan.<sup>3</sup>

For people younger than 45, testing for prediabetes may be appropriate if one or more of the following risk factors are present (the risk factors are similar to those for diabetes):

- Overweight or obese
- High blood pressure
- Low HDL cholesterol and high triglycerides
- Family history of diabetes
- History of gestational diabetes or giving birth to a baby weighing more than nine pounds
- Member of an ethnic or minority group at high risk (African Americans, Latinos, Native Americans, Asian Americans and Pacific Islanders)

### **Prediabetes $\neq$ Diabetes**

People with prediabetes may delay the onset of Type 2 diabetes and possibly even return their blood glucose levels to normal. Recent studies show that modest lifestyle changes, including weight loss (5-10% of body weight) and physical activity (30 minutes/5 days a week), are more effective in preventing or delaying onset of diabetes than drug therapy. One study showed that lifestyle changes alone decreased the incidence of type 2 diabetes by 58%.<sup>4</sup>

### Prediabetes Prevalence<sup>5</sup>

Overall, approximately 54 million adults in the United States have prediabetes (this means 1 out of every 4 adults has prediabetes). It is estimated that 27.3% or 2,066,900 adults age 18-85 in Michigan had prediabetes in 2004 (Table 1). Of the adults in Michigan with prediabetes, three-quarters were age 40-85.

Table 1. Prediabetes prevalence and estimated number of adults with prediabetes in Michigan in 2004, FPG Diagnostic Range (100-125mg/dl).<sup>5</sup>

	Adults 18+	Adults 40+
Estimated National Prevalence*	27.3	35.5
Estimated Number in Michigan	2,066,900	1,616,900

\* Since prediabetes prevalence cannot be estimated for Michigan specifically, the national prevalence rate is applied to Michigan's population to derive the estimated number of adults in Michigan that are affected by prediabetes.

While most children with diabetes have type 1, an estimated 10% of Michigan's teenage population (age 12-17) have prediabetes and are at higher risk for developing type 2 diabetes (Table 2). A recent study showed Native American and Black youth are at greatest risk as compared to all other races.<sup>6</sup>

Table 2. Prediabetes prevalence and estimated number of people with prediabetes in Michigan by age group (2004).<sup>5</sup>

	Estimated National Prevalence	95% CI	Estimated Number in Michigan
12-17 years	10.2	6.9 - 13.5	62,500 - 123,400
18-39 years	16.1	12.7 - 19.5	383,200 - 588,000
40-64 years	33.4	27.5 - 39.3	911,000 - 1,298,900
65-85 years	41.3	36.4 - 46.2	453,300 - 576,400

Non-Hispanic white men and women tend to have higher rates of prediabetes than other racial groups (Table 3). However, minority groups have higher rates of diagnosed and undiagnosed diabetes.<sup>7</sup> Further research is needed to explain these differences.

Table 3. Prediabetes prevalence and estimated number of adults with prediabetes in Michigan by age group, sex and race/ethnicity (2004).<sup>5</sup>

	Estimated National Prevalence	95% CI	Estimated Number in Michigan
<b>Adults 18+</b>	27.3	23.2 - 31.4	1,755,500 - 2,378,300
Male	32.7	27.7 - 37.7	1,017,600 - 1,380,800
Hispanic	22.2	17.1 - 27.3	22,300 - 35,500
Black	22.6	16.5 - 28.7	75,500 - 131,700
White	35.2	29.8 - 40.6	886,900 - 1,205,200
Female	22.3	18.6 - 26.0	727,000 - 1,013,100
Hispanic	14.1	8.8 - 19.4	9,800 - 21,700
Black	21.5	16.8 - 26.2	91,500 - 142,200
White	23.0	18.4 - 27.6	578,000 - 865,900
<b>Adults 40+</b>	35.5	30.6 - 40.4	1,393,800 - 1,840,100
Male	39.8	33.7 - 45.9	721,700 - 985,100
Hispanic	32.5	25.1 - 39.9	11,700 - 18,600
Black	29.6	21.2 - 38.0	49,500 - 88,400
White	41.1	34.1 - 48.1	619,900 - 875,200
Female	31.7	27.1 - 36.3	653,600 - 874,700
Hispanic	25.6	16.7 - 34.5	7,500 - 15,400
Black	32.4	26.7 - 38.1	79,600 - 13,400
White	31.6	25.7 - 37.5	518,500 - 757,300

Sources:

<sup>1</sup> American Diabetes Association. <http://www.diabetes.org/prediabetes.jsp>

<sup>2</sup> Copyright © 2007 American Diabetes Association. From <http://diabetes.org>. Reprinted with permission from *The American Diabetes Association*.

<sup>3</sup> 2005 Michigan Behavioral Risk Factor Survey, Bureau of Epidemiology, Division of Genomics, Perinatal Health and Chronic Disease Epidemiology, MDCH. Population estimate based on Michigan 2004 population data from the National Center for Health Statistics. Population estimate rounded to the nearest 100.

<sup>4</sup> The Prevention or Delay of Type 2 Diabetes. American Diabetes Association (ADA) and National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). *Diabetes Care* 25:742-749, 2002.

<sup>5</sup> Prevalence based on the lab results from the 2003-2004 National Health and Nutrition Examination Survey (NHANES) for people who were examined in the morning session and fasted ≥9 hours, National Center for Health Statistics. Population estimates based on Michigan 2004 population data from the National Center for Health Statistics. Population estimate rounded to the nearest 100.

<sup>6</sup> The Burden of Diabetes Mellitus Among US Youth. SEARCH for Diabetes in Youth Group. *Pediatrics* 118:1510-1518, 2006.

<sup>7</sup> Prevalence of Diabetes and Impaired Fasting Glucose in Adults in the U.S. Population: NHANES 1999-2002. Cowie et al. *Diabetes Care* 29:1263-1268, 2006.